

**PHYTOPHTHORA BLIGHT OF CATHARANTHUS ROSEUS**

T. S. Schubert<sup>1</sup> and R. M. Leahy<sup>2</sup>

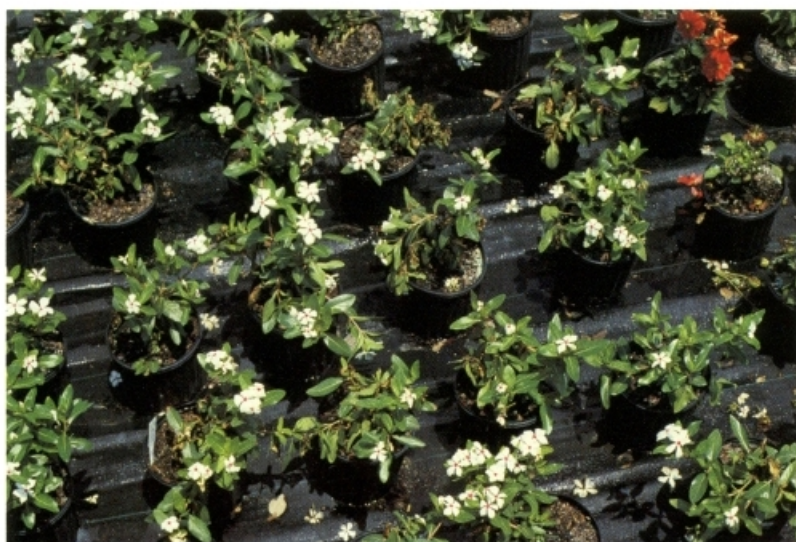
The Madagascar periwinkle (*Catharanthus roseus* (L.) G. Don) is an extremely useful and popular flowering annual which is widely planted for bedding, border, ground cover, and container gardening. In frost-free climates, the plants are perennial, and in most locations periwinkles self-sow readily. Madagascar periwinkle is a mainstay in many Florida summer landscapes and very rewarding for the novice gardener because of its tolerance of extreme heat, humidity, drought, pests, urban environments and poor soil. Despite its notorious durability, periwinkle has occasionally been severely damaged by foliar and stem blight caused by *Phytophthora parasitica* Dast. Few reports of *Phytophthora* blight of periwinkle were found in the Division of Plant Industry (DPI) records up until the early 1980's, when the disease increased in frequency. The disease had been reported previously from India (5), and from California in naturalized plantings (6) and in nursery stock (7).



**Fig. 1.** Early *Phytophthora* blight infection of periwinkle initiating in branch axils, at base of petioles, and on leaf blades.



**Fig 2.** Typical shriveled brownish-green foliar symptoms of *Phytophthora* blight. Infected tissues eventually become darker brown with age.



**Fig. 3.** Containerized periwinkles showing general blight symptoms in different stages of development.

<sup>1</sup>Chief Plant Pathologist, Bureau of Plant Pathology, P. O. Box 1269, Gainesville, FL 32602.

<sup>2</sup>Biological Scientist II, Bureau of Plant Pathology, P. O. Box 1269, Gainesville, FL 32602

**PATHOGEN:** Phytophthora blight of periwinkle is caused by Phytophthora parasitica (P. nicotianae B. de H. var. parasitica (Dast.) Waterh.), a water mold usually encountered as a root or crown rot pathogen on a variety of hosts. Foliar or other above-ground infections by P. parasitica are reported with some regularity on Philodendron scandens subsp. oxycardium (9,11), Bougainvillea sp. (1,2), Cornus florida (4), and Spathiphyllum app. (2). In preliminary experiments with isolates of P. parasitica from foliar infections on periwinkle, root disease could not be induced on hosts such as tomato, green pepper, and bean, which are usually susceptible to root infections by this pathogen. This suggests some specialization of the periwinkle isolate to an above ground habitat. Experiments with several isolates of the periwinkle blight pathogen in axenic culture have demonstrated that the fungus is homothallic.

**DISEASE SYNDROME:** Phytophthora blight of periwinkle is a rapidly developing disease which occurs most often during the hot, humid weather of summer when thunderstorms are frequent. These conditions encourage abundant sporulation by the pathogen, and assist in its dissemination. Zoospores produced in papillate sporangia are presumably the primary inoculum, and infections frequently initiate in the axils of branches, at the base of the leaf petioles, and on the lamina of the leaves (Fig. 1). Initially the symptoms consist of a subtle, shriveled brownish-green discoloration of the infected tissue. These tissues eventually become tan-brown to dark brown with age (Fig. 2). Lesions enlarge rapidly to result in a general blight and/or collapse of the plant (Fig. 3). When conditions remain moist during disease development, evanescent white tufts of sporangia may appear over the surface of the infected tissue (5,12). If drier weather follows infection, the pathogen will continue to spread in existing lesions, but the sporangia will be embedded within infected tissue, not visible on the surface. Oospores may form in these same infected tissues in time, providing the pathogen with a means of long-term survival. Old infections routinely become overrun with secondary fungi such as Colletotrichum gloeosporioides Penz., causing them to blacken with age (10).

**CONTROL** Growers should be absolutely certain that stock plants or purchased plant materials are free of Phytophthora blight. Prevention is extremely important since this serious disease spreads so rapidly. Overhead watering and splashing rain disseminate inoculum (both sporangia and zoospores), encourage infection, and increase disease incidence.

Preventative fungicide sprays should be applied to periwinkles exposed to P. parasitica and any plants showing symptoms should be carefully rogued and destroyed as soon as possible. Pruning of infected plants does not help control this disease, probably because the inoculum from such infections has already dispersed and/or the handling of plants serves to spread the disease. Several fungicides EPA-registered for control of Pythium and Phytophthora diseases (8) have been proven effective in University of Florida Institute of Food and Agricultural Sciences fungicide trials, and in DPI trials. Specific fungicide recommendations must be obtained from your Cooperative Extension Service.

**SURVEY AND DETECTION:** Initial symptoms of Phytophthora blight of periwinkle will appear as wilted or blighted foliage and branch tips, followed by extensive wilt and blight of major branches marked by a dull brownish green discoloration. Blighted stems eventually turn dark brown to black with elongated, sunken lesions. Roots of periwinkles afflicted by this foliar Phytophthora blight are characteristically healthy looking, with no evidence of root rot.

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